Neurobiology of Aging, Vol. 4. © Ankho International Inc. Printed in the U.S.A.

NEUROBIOLOGY OF AGING

Index to

VOLUME 4

NEUROBIOLOGY OF AGING

VOLUME 4 1983

SUBJECT INDEX

Acetylcholine
  age differences, 25, 31
  calcium, 25
  cerebral cortex, 25
  cholinergic drugs, 25
  3,4-diaminopyridine, 25
  tightrope test, 25
Adrenergic responsiveness, 233
  aging
  aorta
  drinking
  heart
  kidney
Age differences
  acetylcholine, 25, 31
  Alzheimer disease, 1
  amphetamine, 65
  blood-brain barrier, 65, 69, 283
  brain damage, 181
  calcium, 25
  cats, 45
  cerebral capillaries, 69
  cerebral cortex, 31
  cerebrospinal fluid outflow pathway, 163
  cerebrovascular permeability, 65
  cholinergic drugs, 25
  conditioned eyeblink reflexes, 45
  cortex, 1
  dendritic spines, 77
  dentate gyrus, 77
  3,4-diaminopyridine, 25
  dietary restriction, 191
  discrimination, 181
  drug interactions, 191
  electron microscopy, 69
  met-enkephalin, 147
  forebrain, 97
  GABA, 97
  glial density, 13
  β-glucuronidase, 13
  glycosaminoglycans, 163
  granule cells, 77
  hippocampus, 13
  horseradish peroxidase, 283
  human studies, 1, 59
  iontophoresis, 97
  lesions, rhinencephalon, 13
  lysosomal acid phosphatase, 13
  neuron sensitivity, noradrenaline induced, 97
  neuronal counts, cortex, 1
  neurophysiology, 113
  noradrenaline, 97
  norepinephrine, 151
  place cells, 113
  rabbits, 151, 163
  recovery of function, 181
  sex differences, 59
  single unit recording, 113
  somatosensory cortex, 59
  stereotypy, 191
  stimulation, transmural nerve, 151
  sympathetic ganglia, 147
  synaptic density, 77
  tight rope test, 25
  vascular smooth muscle, 151
Aggression, 305
  aggression
  inbred mice
  infanticide
  testosterone
Aging
  adrenergic responsiveness, 233
  aggression, 305
  antitoxidants, 239
  aorta, 233
  beagles, 121
  brain disease, 297
  calcitonin, 229
  catecholamine spots, 239
  centrophenoxine, 89
  cerebral abnormalities, 289
  cerebral atrophy, 297
  cerebral cortex, 273
  cerebral metabolism, 121
  ceroid lipofuscinosis, 297
  copper-LHRH release, 217
  corticosterone, 133
  dimensions of cortex, 273
  dopamine receptor density, 313
  drinking, 233
  β-endorphin, 187
  extrapyramidal system, 229
  glucose utilization, 121
  heart, 233
  human studies, 289
  hyperthermia, 187
  inbred mice, 157, 305
  infanticide, 305
  kidney, 233
  lipofuscin, 89
  locomotor activity, 157, 313, 321
  luteinizing hormone releasing hormone, 217
  methadone concentration, 321
  narcotics, 321
  neuronal loss, 273
  pituitary-adrenal system, 133
  retinal pigment epithelium, 89
  secretory granules, 217
  senescent rodents, 313
  sex differences, 133
  squirrel monkeys, 187
  stress, 133
  testosterone, 305
  thermoregulation, 187
Aging neurons, 197
  cerebrum, hamster
  nuclear envelope invaginations
  nuclear morphometry
Alzheimer's disease
  age differences, 1
  cholinergic agonists, 37
  cholinergic drugs, 139
  cortex, 1
  drug interaction, 37
  human studies, 1
  memory, 37, 139
  neuronal counts, cortex, 1
  retention, 37
  visual recognition, 139
  word list learning, 139
Amphetamine, 65
  age differences
  blood-brain barrier
  cerebrovascular permeability
Antitoxidants, 239
  aging
  catecholamine spots
Aorta, 233
  adrenergic responsiveness
  aging
  drinking
  heart
  kidney

Beagles, 121
  aging
  cerebral metabolism
  glucose utilization
Blood-brain barrier
  age differences, 65, 69, 283
  amphetamine, 65
  cerebral capillaries, 69
  cerebrovascular permeability, 65
  electron microscopy, 69
  horseradish peroxidase, 283
Brain
  caudate nucleus, 121, 261
  central nervous system, 127
  cerebellum, 97
  cerebral cortex, 31, 97, 163, 273
  cerebrum, hamster, 197
  cortex, 1, 59
  forebrain, 97
  frontal cortex, 69
  hippocampus, 13, 69, 113, 121
  hypothalamus, 53, 217
  medial amygdaloid nucleus, 203

midbrain, 121
pons, 121
rhinencephalon, 13
striatum, 191, 313
superior colliculus, 121
superior frontal gyrus, 121
temporal cortex, 121
temporal gyri, 1
visual cortex, 181
Brain damage, 181
age differences
discrimination
recovery of function
Brain disease, 297
aging
cerebral atrophy
ceroid lipofuscinosis

Calcitonin, 229
aging
extrapyramidal system
Calcium, 25
acetylcholine
age differences
cholinergic drugs
3,4-diaminopyridine
tight rope test
Castrated males, 223
rhesus macaques
sexual behavior, aging males
testosterone levels
Catecholamine spots, 239
aging
antitoxidants
Cats, 45
age differences
conditioned eyeblink reflex
Central nervous system, 127
dogs
lesions, Alzheimer
morphometry
Centrophenoxine, 89
aging
lipofuscin
retinal pigment epithelium
Cerebral abnormalities, 289
aging
human studies
Cerebral atrophy, 297
aging
brain disease
ceroid lipofuscinosis
Cerebral capillaries, 69
age differences
blood brain barrier
electron microscopy
Cerebral cortex
acetylcholine, 31
age differences, 31
aging, 273
dimensions of cortex, 273
neuronal loss, 273
Cerebral metabolism, 121
aging
beagles
glucose utilization
Cerebrospinal fluid outflow pathway, 163
age differences
glycosaminoglycans
rabbits
Cerebrovascular permeability, 65
age differences
amphetamine
blood-brain barrier
Cerebrum, hamster, 197
aging neurons
nuclear envelope invaginations
nuclear morphometry
Ceroid lipofuscinosis, 297
aging
brain disease
cerebral atrophy
Cholinergic agonists, 37
Alzheimer's disease
drug interactions
memory
retention
Cholinergic drugs
acetylcholine, 25
age differences, 25
Alzheimer's disease, 139
calcium, 25
3,4-diaminopyridine, 25
memory, 139
tight rope test, 25
visual recognition, 139
word list learning, 139
Conditioned eyeblink reflex, 45
age differences
cats
Copper-LHRH release, 217
aging
luteinizing hormone releasing hormone
secretory granules
Cortex, 1
age differences
Alzheimer disease
human studies
neuronal counts, cortex
Corticosterone, 133
aging
pituitary-adrenal system
sex differences
stress

Dendritic spines, 77
age differences
dentate gyrus
granule cells
synaptic density
Dentate gyrus, 77
age differences
dendritic spines
granule cells
synaptic density
3,4-Diaminopyridine, 25
acetylcholine
age differences
calcium
cholinergic drugs
tight rope test
Dietary restriction, 191
age differences
drug interactions
stereotypy
Dimensions of cortex, 273
aging
cerebral cortex
neuronal loss
Discrimination, 181
age differences
brain damage
recovery of function
Dogs, 127
CNS
lesions, Alzheimer
morphometry
Dopamine receptor density, 313
aging
locomotor behavior
senescent rodents
Drinking, 233
adrenergic responsiveness
aging
aorta
heart
kidney
Drugs
acetylcholine, 25, 31, 191
adenosine, 31
amphetamine, 65, 191
apomorphine, 191
arecoline, 37, 139
ascorbic acid, 239
atropine, 31, 191
calcitonin, 229
centrophenoxine, 89
deanol, 37
3,4-diaminopyridine, 25
dopamine, 191, 313
edrophonium, 37
haloperidol, 313
isoproterenol, 233
β-mercaptoethylamine, 239
methadone, 321
methadone hydrochloride, 157
morphine, 187
oxotremorine, 37
physostigmine, 139
scopolamine, 139
tetrahydroaminoacridine, 139
α-tocopherol, 239
Drug interactions
age differences, 191
Alzheimer's disease, 37
cholinergic agonists, 37
dietary restriction, 191
memory, 37
retention, 37
stereotypy, 191

Electron microscopy, 69
age differences
blood brain barrier
cerebral capillaries
β-Endorphin, 187
aging
hyperthermia
squirrel monkeys
thermoregulation
Met-enkephalin, 147
age differences
sympathetic ganglia
Extinction, 203
learning and memory
neuroanatomy
senescent rats
visual discrimination
Extrapyramidal system, 229
aging
calcitonin

Forebrain, 97
age differences
GABA
iontophoresis
neuron sensitivity, noradrenaline induced
noradrenaline

GABA, 97
age differences
forebrain
iontophoresis
neuron sensitivity, noradrenaline induced
noradrenaline
Gangliosides, 261
human studies
monoamines
muscarinic receptors
postmortem investigations
senile dementia of Alzheimer type
Glial density, 13
age differences
β-glucuronidase
hippocampus
lesions, rhinencephalon
lysosomal acid phosphatase
Glucose utilization, 121
aging
beagles
cerebral metabolism
β-Glucuronidase, 13
age differences
glial density
hippocampus
lesions, rhinencephalon
lysosomal acid phosphatase
Glycosaminoglycans, 163
age differences
cerebrospinal fluid outflow pathway
rabbits
Granule cells, 77
age differences
dendritic spines
dentate gyrus
synaptic density

Heart, 233
adrenergic responsiveness
aging
aorta
drinking
kidney
Hippocampus, 13
age differences
glial density
β-glucuronidase
lesions, rhinencephalon
lysosomal acid phosphatase
Hormones
estradiol benzoate, 53
LHRH, 53
noradrenaline, 97
progesterone, 53
testosterone, 223, 305
Horseradish peroxidase, 283
age differences
blood-brain barrier
Human studies
age differences, 1, 59
aging, 289
Alzheimer disease, 1
cerebral abnormalities, 289
cortex, 1
gangliosides, 261
monoamines, 261
muscarinic receptors, 261
neuronal counts, cortex, 1
postmortem investigations, 261
senile dementia of Alzheimer type, 261
sex differences, 59
somatosensory cortex, 59
Hyperthermia, 187
aging
β-endorphin
squirrel monkeys
thermoregulation
Hypothalamus, 53
LHRH
ovariectomy
steroid replacement

Inbred mice
aggression, 305
aging, 157, 305
infanticide, 305
locomotor activity, 157
testosterone, 305
Infanticide, 305
aggression
aging
inbred mice
testosterone
Iontophoresis, 97
age differences
forebrain
GABA
neuron sensitivity, noradrenaline induced
noradrenaline

Kidney, 233
adrenergic responsiveness
aging
aorta
drinking
heart

Learning and memory, 203
extinction
neuroanatomy
senescent rats
visual discrimination
Lesions, Alzheimer, 127
CNS
dogs
morphometry
Lesions, rhinencephalon, 13
age differences
glial density
β-glucuronidase
hippocampus
lysosomal acid phosphatase
Lipofuscin, 89
aging
centrophenoxine
retinal pigment epithelium
Locomotor activity
aging, 157, 313, 321
dopamine receptor density, 313
inbred mice, 157
methadone concentration, 321
narcotics, 321
senescent density, 313
Luteinizing hormone releasing hormone
aging, 217
cooper-LHRH release, 217
hypothalamus, 53
ovariectomy, 53
secretory granules, 217
steroid replacement, 53
Lysosomal acid phosphatase, 13
age differences
glial density
β-glucuronidase
hippocampus
lesions, rhinencephalon

Memory
Alzheimer's disease, 37, 139
cholinergic agonists, 37
cholinergic drugs, 139
drug interaction, 37
retention, 37
visual recognition, 139
word list learning, 139
Methadone concentration, 321
aging
locomotor activity
narcotics
Method
computed tomography, 297
electron microscopy, 69, 89, 283
fluorescence microscopy, 239
horseradish peroxidase, 283
light microscopy, 89, 283
nuclear magnetic resonance imaging, 297
radial maze, 113
zone electrophoresis, 163
Monoamines, 261
gangliosides
human studies
muscarinic receptors
postmortem investigations
senile dementia of Alzheimer type
Morphometry, 127
CNS
dogs
lesions, Alzheimer

Narcotics, 321
aging
locomotor activity
methadone concentration
Neuroanatomy, 203
extinction
learning and memory
senescent rats
visual discrimination
Neuron sensitivity, noradrenaline induced, 97
age differences
forebrain
GABA
iontophoresis
noradrenaline
Neuronal counts, cortex, 1
age differences

Alzheimer's disease
cortex
human studies
Neuronal loss, 273
aging
cerebral cortex
dimensions of cortex
Neurophysiology, 113
age differences
place cells
single unit recording
Noradrenaline, 97
age differences
forebrain
GABA
iontophoresis
neuron sensitivity, noradrenaline induced
Norepinephrine, 151
age differences
rabbits
stimulation, transmural nerve
vascular smooth muscle
Nuclear envelope invaginations, 197
aging neurons
cerebrum, hamster
Nuclear morphometry, 197
aging neurons
cerebrum, hamster
nuclear envelope invaginations

Ovariectomy, 53
hypothalamus
LHRH
steroid replacement

Peptides
β-endorphin, 187
LHRH, 217
met-enkephalin, 147
Pituitary-adrenal system, 133
aging
corticosterone
sex differences
stress
Place cells, 113
age differences
neurophysiology
single unit recording
Postmortem investigations, 261
gangliosides
human studies
monoamines
muscarinic receptors
senile dementia of Alzheimer type

Rabbits
age differences, 151, 163
cerebrospinal fluid outflow pathway, 163
norepinephrine, 151
rabbits, 163
stimulation, transmural nerve, 151
vascular smooth muscle, 151
Recovery of function, 181
age differences
brain damage
discrimination
Retention, 37
Alzheimer's disease
cholinergic agonists
drug interaction
memory
Retinal pigment epithelium, 89
aging
centrophenoxine
lipofuscin
Rhesus macaques, 223
castrated males
sexual behavior, aging males
testosterone levels

Secretory granules, 217
aging
copper-LHRH release
luteinizing hormone releasing hormone
Senescent rats, 203
extinction
learning and memory
neuroanatomy
visual discrimination
Senescent rodents, 313
aging
dopamine receptor density
locomotor behavior
Senile dementia of Alzheimer type, 261
gangliosides
human studies
monoamines
muscarinic receptors
postmortem investigations
Sex differences
age differences, 59
aging, 133
corticosterone, 133
human studies, 59
pituitary-adrenal system, 133
somatosensory cortex, 59
stress, 133
Sexual behavior, aging males, 223
castrated males
rhesus macaques
testosterone levels
Single unit recording, 113
age differences
neurophysiology
place cells
Somatosensory cortex, 59
age differences
human studies
sex differences
Squirrel monkeys, 187
aging
β-endorphin
hyperthermia
thermoregulation
Stereotypy, 191
age differences
dietary restriction
drug interactions
Steroid replacement, 53
hypothalamus
LHRH
ovariectomy
Stimulation, transmural nerve, 151
age differences
norepinephrine
rabbits
vascular smooth muscle
Stress, 133
aging
corticosterone
pituitary-adrenal system
stress
Sympathetic ganglia, 147
age differences
met-enkephalin
Synaptic density, 77
age differences
dendritic spines
dentate gyrus
granule cells

Testosterone, 305
aggression
aging
inbred mice
infanticide
Testosterone levels, 223
castrated males
rhesus macaques
sexual behavior, aging males
Thermoregulation, 187
aging
β-endorphin
hyperthermia
squirrel monkeys
Tight rope test, 25
acetylcholine
age differences
calcium
cholinergic drugs
3,4-diaminopyridine

Vascular smooth muscle, 151
age differences
norepinephrine
rabbits
stimulation, transmural nerve
Visual discrimination, 203
extinction
learning and memory
neuroanatomy
senescent rats
Visual recognition, 139
Alzheimer's disease
cholinergic drugs
memory
word list learning

Word list learning, 139
Alzheimer's disease
cholinergic drugs
memory
visual recognition

AUTHOR INDEX

Adolfsson, R., 261
Aquilonius, S.-M., 261
Armstrong, D., 297

Ball, M. J., 127
Barnea, A., 217
Barnes, C. A., 113
Bartus, R. T., 313
Beer, B., 313
Benes, F. M., 289
Bernardini, R., 229
Blossom, E., 65
Breen, M., 163
Brett, L. P., 133
Brinkman, S. D., 139
Brizzee, D., 69
Broida, J., 305
Buchwald, J., 45
Buell, S. J., 283
Buschmann, MB, T., 197

Carlsson, A., 261
Castelletti, L., 147
Chambers, K. C., 223
Charles, P., 65
Cherkin, A., 37
Cho, G., 217
Chong, G. S., 133
Clementi, G., 229
Clemons, K., 65
Clody, D., 313
Collins, J. A., 163
Cotman, C. W., 13
Coyle, S., 133
Curcio, C. A., 77

Dean, R. L., III, 327
De Simone, D., 229
Dowds, M., 289
Duckles, S. P., 151
Dylewski, D. P., 89

Eckernas, S.-Å., 261
Erwin, C. W., 59
Evans, H. M., 1
Evans, N. J. R., 1

Feldman, M. L., 273
Field, F. P., 233
Finch, C., 313
Flicker, C., 329
Flood, J. F., 37
French, A. W., 121
Fyfe, I. M., 127

Gershon, S., 139
Ghiraldi, L., 305
Gibson, G. E., 25
Gotteries, C.-G., 261
Govoni, S., 147

Harrison, J., 45
Hicks, P., 69
Hinds, J. W., 77

Ingram, D. K., 157, 191, 321

Jones, R. S. G., 97
Joseph, J. A., 191, 313

Kapetanovic, I. M., 321
Kinsley, C., 305
Knepper, P. A., 163
Konen, C., 305
Koppang, N., 297
Kotas, A., 31

LaVelle, A., 197
LeVere, N. D., 181
Levine, S., 133

Lipton, J. M., 187
London, E. D., 121, 127
Losey, R. K., 163

McLone, D. G., 163
McNaughton, B. L., 113

MacGregor, J., 127
Mann, M., 305
Markowitsch, H. J., 203
Masuoka, D. T., 239
Meites, J., 53
Middaugh, L. D., 157, 321
Miele, J., 305
Missale, C., 147
Morgan, D., 313
Mountjoy, C. Q., 1
Murphy, M. T., 187

Nandy, K., 89
Nandy, S., 89
Nicoletti, F., 229
Nordberg, A., 261

Ohata, M., 121
O'Keefe, J., 113
Olpe, H.-R., 97
Opsahl, C., 289
Oreland, L., 261

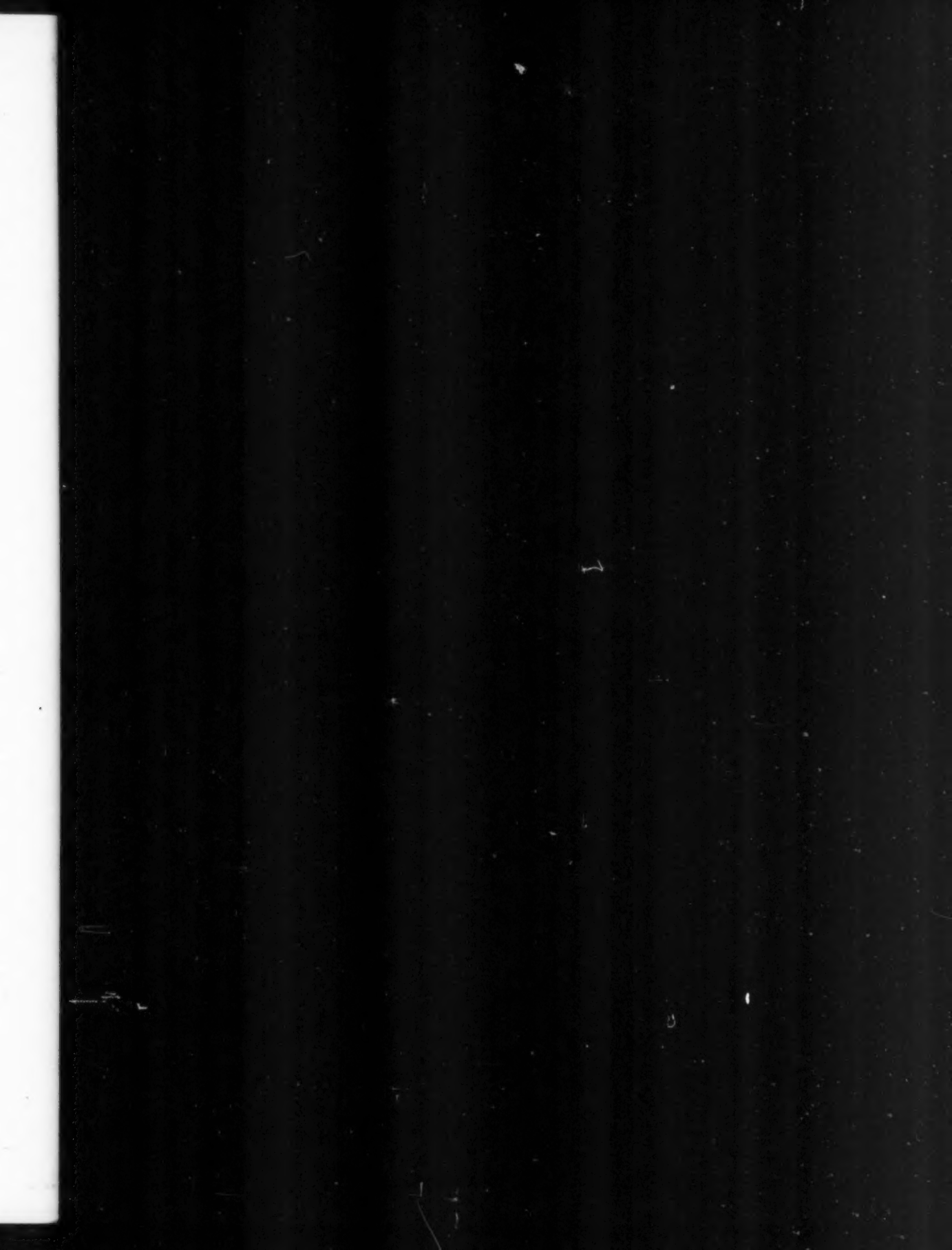
Patti, F., 229
Pedata, F., 31
Peluso, J. J., 53
Pepeu, G., 31
Peters, A., 273
Peterson, C., 25
Phoenix, C. H., 223
Pontecorvo, M. J., 243
Prato, A., 229

Quisling, R. G., 297

Rapoport, S. I., 121, 127
Ress, R. J., 233
Reynolds, M. A., 157
Rice, G. E., 217
Rolsten, C., 69
Roth, G. S., 191
Roth, M., 1
Rothman, S. L. G., 289
Rudick, R. A., 283

Samorajski, T., 69
Sankar, R., 65
Sarter, M., 203
Scapagnini, U., 229
Sesack, S., 313
Simpkins, J. W., 233
Simpson, D. M., 59
Slavikova, J., 31
Smith, G. E., 37
Sonntag, W. E., 53
Spano, P. F., 147
Steger, R. W., 53
Svare, B., 305
Svennerholm, L., 261
Sweeney, D. J., 321
Swigar, M. E., 289

Takei, H., 121
Trabucchi, M., 147

Vaughan, D. W., 273
Vijayan, V. K., 13

Webb, A., 297
Weinstein, H. G., 163
Whitaker, J., 191
Wiberg, Å., 261
Winblad, B., 261